

ANNOTATED KEY TO *ERIOGONUM* (POLYGONACEAE) OF NEVADA

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ABSTRACT.— Seventy-three species of *Eriogonum* (Polygonaceae) are reported for Nevada. A key is provided for the identification of these species along with brief notes on their distribution in the state and elsewhere.

The genus *Eriogonum* is a prominent member of the Nevada flora, and, except for the treatment of the genus by Tidestrom (1925), no key for the native species is available. The present treatment has been prepared for a doctoral dissertation by John Kartesz, a graduate student at the University of Nevada, who is writing a manual on the flora of Nevada. New entities discussed in this treatment may be found in a companion paper (Reveal 1985).

The key is followed by a comment section. The arrangement of the species in the key is largely artificial and should not be taken as representative of natural affinities. In the comment section species are arranged in a sequence that may be regarded as more natural. The distribution data given for Nevada is detailed, but that for adjacent states or regions is more generalized.

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|-------|--|---------------------------|
| 1. | Plants perennial, not annual, but see <i>E. inflatum</i> with its inflated stems and yellow, hirsute flowers | 2 |
| — | Plants annual, or if perennial then stems inflated and flowers yellow, hirsute, and in pedunculated involucre | 41 |
| 2(1). | Flowers not stipelike at the base | 3 |
| — | Flowers stipelike at the attenuated base, sometimes weakly so | 33 |
| 3(2). | Plants distinctly shrubby or subshrubby, woody above the basal caudex and not dying back completely to the ground after each year. | 4 |
| — | Plants herbaceous, caespitose or pulvinate perennials, not at all shrubby or subshrubby | 9 |
| 4(3). | Flowers pubescent without, 2.5–3 mm long, white to pink; low shrubs; Esmeralda, Nye, Lincoln, and Clark cos. | 6. <i>E. fasciculatum</i> |
| — | Flowers glabrous without | 5 |
| 5(4). | Stems and branches smooth, glabrous to tomentose, not angled or scabrellous; inflorescences with involucre arranged in loose to compact terminal cymes or racemously along the straight branches, the branches not zigzag. | 6 |
| — | Stems and branches angled or ribbed, or if smooth then obviously scabrous, or, if smooth and tomentose, then inflorescences of zigzag branches. | 8 |
| 6(5). | Inflorescences cymose throughout with involucre dichotomously arranged even at the tips of the branches; leaves less than 8 mm wide, or, if broader, then flowers yellow | 7 |

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- Inflorescences large with numerous branches and branchlets bearing racemously arranged involucre at their tips; flowers white; White Pine and Lincoln cos. westward across central Nevada to Esmeralda, Mineral, and Ormsby cos. 2. *E. nummularae*
- 7(6). Leaf-apices acute, the blade less than 8 mm wide; flowers white, or, if yellow, then plants of western Nevada; widespread and common throughout the state 1. *E. microthecum*
- Leaf-apices rounded, the blades 5–15 mm wide; flowers yellow; local, near Las Vegas, Clark Co. 3. *E. corymbosum*
- 8(5). Stems and branches angled, ribbed or smooth and scabrous; involucre 0.7–2 mm long; throughout the lower two-thirds of the state 4. *E. heermannii*
- Stems and branches tomentose; involucre 2–2.5 mm long; rare, southernmost Clark Co. 5. *E. plumatella*
- 9(3). Plants caespitose or pulvinate perennials with a terminal, capitate cluster of involucre. 10
- Plants upright herbs with open, often elongated or much-branched inflorescences 27
- 10(9). Tepals monomorphic, glabrous or pubescent. 11
- Tepals strongly dimorphic, the outer tepals broader than inner tepals, or, if only slightly dimorphic, then the plants with oval to rotund leaf-blades 2–8 mm long and wide and restricted to the high mountains; common nearly throughout the state 28. *E. ovalifolium*
- 11(10). Flowers glabrous or glandular without, not pubescent with long hairs 12
- Flowers hairy pubescent without, not glabrous or glandular 26
- 12(11). Involucre rigid and distinctly tubular 13
- Involucre membranaceous and indistinctly forming a tube, mostly 2–3.5 mm long, glandular or glandular-hairy without. 23
- 13(12). Scapes glabrous or tomentose, not glandular or glandular-hairy 14
- Scapes glandular-hairy or glandular, not glabrous or tomentose 22
- 14(13). Scapes glabrous 15
- Scapes tomentose to floccose 16
- 15(14). Leaves ovate to obovate, 1–2 cm long, 5–10 mm wide; scapes 1–2 dm long; involucre floccose without; clay hill or flats, Storey, Lyon and Washoe cos. 8. *E. ochrocephalum*
- Leaves spatulate to oblanceolate, 0.4–0.8 (1) cm long, 2–3 (4) mm wide; scapes 0.2–0.8 dm long; involucre glabrous or with a few hairs on the teeth; volcanic slopes and outcrops in northern Washoe Co. 9. *E. prociduum*
- 16(14). Flowers bright yellow 17
- Flowers pale yellow or more often whitish with a reddish midrib, 2–3 mm long; involucre 2–5 mm long 20
- 17(16). Involucre 3.5–5 mm long, floccose over the upper half of the tube; leaf-blades oblong to lanceolate, (1) 1.5–2.5 cm long, the petioles 1.5–3 cm long; scapes (0.6) 1–1.5 cm long; Lyon Co. northward to southern Washoe and Pershing cos. 8. *E. ochrocephalum*
- Involucre 2–3 mm long 18

- 18(17). Leaf-blades 1.5–2.5 (3) cm long, 5–9 mm wide; scapes densely tomentose; involucre tomentose without; flowers 2.5–3 mm long; Elko Co. south to northern White Pine Co. and westward to adjacent northern Eureka Co., 1700–2630 m elev. 7. *E. desertorum*
- Leaf-blades less than 1.5 cm long and 7 mm wide; scapes floccose; involucre floccose without and then mainly on the upper half of the tube; flowers mostly less than 2.5 mm long 19
- 19(18). Flowers (2) 2.5–3 mm long; involucre 2.5–3 mm long; leaf-blades 4–7 mm wide; high elevation rocky slopes in Elko Co. 10. *E. lewisii*
- Flowers 1.5–2 mm long; involucre 2–3 mm long; leaf-blades 1.5–4 (5) mm wide; low elevation clay outcrops in Humboldt Co. 11. *E. crosbyae*
- 20(16). Involucre 2–2.5 mm long, floccose without; leaf-blades broadly elliptic to obovate or suborbicular, (7) 9–13 (15) mm long, 5–9 (11) mm wide; flowers glabrous; Lander, Pershing, and southwestern Humboldt cos. 14. *E. anemophilum*
- Involucre 4–5 mm long, sparsely floccose without; leaf-blades elliptic to oblong, (8) 12–25 mm long, 5–8 (10) mm wide; flowers sparsely glandular without; Esmeralda Co. 15. *E. tiehmi*
- 21(13). Involucre tomentose without, 3–4 mm long; leaf-blades 1–2 cm long; flowers 2–2.5 mm long; scapes 0.7–2 dm long; clay hills mainly in Washoe Co., mostly below 2000 m elev. 8. *E. ochrocephalum*
- Involucre glandular-hairy or glandular, not tomentose; plants above 2000 m elev. or, if at lower elevations, then not of northwestern Nevada 22
- 22(21). Leaves oblanceolate, 4–15 mm long, 2.5–5 (6) mm wide; involucre more or less turbinate, 2.5–3 mm wide with (5) 6–8 teeth; achenes 1.5–2 mm long; montane forests and alpine areas in the Sierra Nevada and adjacent ranges of Esmeralda Co. northward to Washoe Co. mostly 2440–3300 m elev. 12. *E. roseense*
- Leaves elliptic, 10–25 mm long, 5–16 mm wide; involucre campanulate, 3–4 mm wide with 5 teeth; achenes (2.5) 3–3.5 mm long; clay hills and slopes in Lander, Eureka, Mineral, Nye, and Churchill cos., 1700–2750 m elev. 13. *E. beatleyae*
- 23(12). Flowers greenish yellow or pale yellow, not white or rose 24
- Flowers white to rose or red, not greenish yellow or pale yellow. 25
- 24(23). Involucre (2.8) 3–3.5 mm long; petioles 4–12 (15) mm long, thinly tomentose; flowers (2.5) 3–3.5 mm long, glabrous; rocky outcrops at high elevations, 2250–3250 m, East Humboldt and Ruby mts., Elko Co. and Cherry Creek Range, northern White Pine Co. 16. *E. kingii*
- Involucre 2–2.5 mm long; petioles 0.5–1 (1.5) mm long, densely tomentose; flowers 2.5–3 mm long, sparsely glandular; clay flat near Sulphur Hot Springs, 1850 m, Ruby Valley, Elko Co. 17. *E. argophyllum*
- 25(23). Leaves 1–2 cm long, densely white-tomentose below, less so and white above; scapes 3–8 cm long, glandular, not floccose; inflorescences of 5–7 involucre; pedicels glandular at the tips; high elevation sandy to granitic outcrops, White Mts., Esmeralda Co. 18. *E. gracilipes*
- Leaves 0.3–1 cm long, densely white-tomentose and greenish below, less so and greenish above; scapes up to 3 cm long, floccose and glandular; inflorescences of 2–4 involucre; pedicels glabrous except for a few scattered glands at the base; high elevation limestone and quartzite outcrops, Snake Range, White Pine Co. 19. *E. holmgrenii*

- 26(11). Ovaries and achenes glabrous; plants loosely caespitose with 10–20 rosettes; branches prostrate to weakly erect, 2–8 cm long; inflorescences cymose-umbellate to more or less capitate; local and infrequent on limestone gravel, Eureka, Nye, White Pine, and Lincoln cos. 20. *E. villiflorum*
- Ovaries and achenes pubescent; plants densely caespitose with 15–50 or more rosettes; branches erect, up to 3 cm long; inflorescences capitate; common on clay to gravel flats and slopes from Esmeralda to Nye and Clark cos. eastward to Elko and Lincoln cos. 21. *E. shockleyi*
- 27(9). Tepals monomorphic; plants not with elliptic leaves 5–15 mm long and tomentose stems 28
- Tepals dimorphic; plants 1–3 dm tall, the branches and stems tomentose; leaves mostly elliptic, 5–25 mm long, 5–15 mm wide, tomentose on both surfaces; flowers white or yellow; northern and northwestern Nevada. 29. *E. strictum*
- 28(27). Inflorescences with involucre racemously arranged along the branches, involucre solitary 29
- Involucre with involucre in cymes with usually clustered involucre dichotomously arranged throughout the inflorescence 32
- 29(28). Plants suffrutescent and branched at the base; leaves many, oblanceolate to elliptic, 0.5–1 cm long, 2–5 mm wide; involucre turbinate, 2–2.5 mm long; flowers white; rare and local in southern Clark Co. or common from Mineral Co. northward 22. *E. wrightii*
- Plants not suffrutescent at the base; basal leaves few, more than 1 cm long and 5 mm wide 30
- 30(29). Basal leaves roundish to broadly ovate, the leaf-blades 1.5–4 cm long, on petioles 1–5 cm long; plants with branched and woody spreading caudices; involucre and flowers 3–5 mm long; dry rocky slopes of Esmeralda Co. southeastwardly to the Spring Mts. and Sheep Range of Clark Co. 23. *E. panamintense*
- Basal leaves oblong, cordate, ovate or elliptic, the leaf-blades (2) 3–10 cm long, on petioles 3–10 cm long; plants arising from a single, woody, mostly unbranched caudex; involucre 2–5 mm long; flowers 2–4 mm long; Mineral and Nye cos. eastward to White Pine, Lincoln, and northern Clark cos. 31
- 31(30). Inflorescences cymose with 3–5 racemously arranged involucre at the ends of the branches; plants 3–5 dm high with 3–7 stems arising from the caudex, rarely with 7–20 stems on somewhat more spreading caudices in some; involucre 2–3.5 mm long; widespread and common from Mineral and Esmeralda cos. across the central portion of the state to Lander and Nye cos. 24. *E. rupinum*
- Inflorescences cymose with 5–20 or more racemously arranged involucre at the end of the branches; plants 3–10 dm high with 1–3 (5) stems arising from the compact caudex; widespread and locally common in Lincoln, White Pine, Nye, and northern Clark cos. 25. *E. racemosum*
- 32(28). Leaves tomentose below, somewhat less so above, the leaf-blades spreading with apices mostly obtuse; flowers glabrous; along the western edge of the state from Douglas and Carson City cos. northward 26. *E. nudum*
- Leaves villous and green on both surfaces, the leaf-blades erect, with acute apices; flowers thinly pubescent; rather common throughout the northern half of the state 27. *E. elatum*
- 33(2). Flowers with a long, tubular, more or less winged stipe at the base of white flower, together (3) 5–7 mm long, glabrous, the tepals dimorphic; leaves broadly obovate to roundish, 1–2 cm long, 1–1.5 cm wide, lanate to tomentose on both surfaces; flowering branches 5–10 cm long; inflorescences 0.5–1.5 dm long; rare and local in Clark, Nye, and Esmeralda cos. 30. *E. saxatile*

- Flowers abruptly stipitate, the stipe sometimes obscure and never winged; flowers generally yellow or cream 34
- 34(33). Involucres with lobes at least half as long as the tube, the lobes usually reflexed or spreading, never erect and toothlike 35
- Involucres with lobes much shorter than the tube, toothlike and erect or nearly so 39
- 35(34). Flowers glabrous without 36
- Flowers pubescent without 37
- 36(35). Flowering stems not bracteate near the middle; leaf-blades oblong to elliptic; inflorescences umbellate to once or twice compoundly umbellate; common throughout the state 31. *E. umbellatum*
- Flowering stems bracteate near the middle; leaf-blades linear to oblanceolate; inflorescences compoundly umbellate three to several times; common across the northern half of the state 32. *E. heracleoides*
- 37(35). Flowering branches with a whorl of subtending bracts at the base of the umbel or near the middle of the ray 38
- Flowering branches without subtending bracts and with a solitary, terminal involucre; widespread and common throughout the Great Basin portion of the state 35. *E. caespitosum*
- 38(37). Involucres more than 1, umbellate, subtended by (2) 3—several leafy bracts below the umbel, or, if seemingly in the middle of the flowering branch, then the leaves glabrate above; leaves 1–3 (4) cm long; flowers 5–9 mm long; Carson City north and eastward to western Elko Co. 33. *E. sphaerocephalum*
- Involucres solitary, terminal, not immediately subtended by leafy bracts, the flowering branches with a whorl of bracts near the middle; leaves densely tomentose on both surfaces; flowers 5–8 mm long; Peavine Mtn. area of southern Washoe Co. 34. *E. douglasii*
- 39(34). Flowers pubescent without, cream to pale yellow, 5–6 mm long; leaves short-pilose to subglabrous, 1–3 cm long; White Mountains, Esmeralda Co. 37. *E. latens*
- Flowers glabrous without; leaves tomentose at least on the lower surface 40
- 40(39). Flowering branches erect, thinly tomentose; involucres 2–3 mm long; flowers unisexual, the male flowers yellow, 1.5–3 mm long, the female flowers yellow to lemon yellow, 4–7 mm long; infrequent, Carson City, Washoe, and Humboldt cos. 36. *E. marifolium*
- Flowering branches prostrate to weakly erect, usually densely tomentose; involucres 5–15 mm long; flowers perfect, white to rose or red, 5–9 mm long; locally frequent in Washoe, Storey, Lyon, and Carson City cos. 38. *E. lobbii*
- 41(1). Involucres smooth, not ribbed or angled, usually distinctly peduncled, or if sessile then involucres not vertically appressed to the stems; annuals except for *E. inflatum* 42
- Involucres angled to strongly ribbed, usually tightly appressed to the stem and always sessile; strictly annuals 68
- 42(41). Leaves basal, not cauline, occasionally the leaves sheathing up the base 43
- Leaves basal and cauline at the lower nodes 66
- 43(42). Leaves glabrous, pilose, hispid or villous on one or both surfaces, not densely tomentose at least on the lower surface; flowers mostly yellow 44
- Leaves densely tomentose to floccose-tomentose on one or both surfaces; flowers mostly white, glabrous or glandular-puberulent 52

- 44(43). Flowers pubescent without 45
 — Flowers glabrous without 49
- 45(44). Plants glabrous, or, if glandular, the glands infrequent and restricted to the base and lower nodes of the stems and branches 46
 — Plants glandular, the glands dense and frequent throughout the plant 48
- 46(45). Involucres 5-toothed. 47
 — Involucres 4-toothed; plants strictly annual; flowering stems glabrous or hirsute at the base, green to yellowish; widespread and common in southern Nye and Lincoln cos. and throughout Clark Co. 41. *E. trichopes*
- 47(46). Flowering stems glabrous and glaucous or with a few hirsute hairs at the base, grayish or green; plants first-year flowering perennials; widespread and common in the southern third of the state 39. *E. inflatum*
 — Flowering stems glandular at the base and occasionally at the lower nodes, otherwise glabrous above, reddish; plants strictly annual; low desert valleys and foothills in extreme southern Nye and northern Clark cos. 40. *E. contiguum*
- 48(45). Flowers yellow, 1–1.5 (2) mm long; involucre turbinate-campanulate, 1.3–2 mm long on erect peduncles 3–10 mm long; achenes 1.5–1.8 mm long; Nye Co. eastward to Lincoln, White Pine and Elko cos. mostly on volcanic or limestone ranges 42. *E. howellianum*
 — Flowers white, 1–1.8 mm long; involucre narrowly turbinate, 0.8–1.2 (1.5) mm long on deflexed peduncles 2–5 mm long; achenes 1–1.3 mm long; southwestern Nye and northern Clark cos. on low limestone desert ranges 43. *E. glandulosum*
- 49(44). Involucres long peduncled at least at the lower nodes. 50
 — Involucres sessile or the lowermost short-pedunculate, the tube campanulate, 2–2.5 mm long, 2.5–3 mm wide; flowers pink to rose, 1.5–2 mm long; clayey foothills and flats in northwestern Nevada 47. *E. lemmonii*
- 50(49). Flowers white to greenish white; involucre turbinate; peduncles descending 51
 — Flowers pale yellow to yellow; involucre campanulate, 2.5–3 mm long and wide; peduncles 2–3 cm long, erect; volcanic ranges in northwestern Nevada 46. *E. rubricaula*
- 51(50). Peduncles slender to filiform, 2–15 mm long, spreading to deflexed; leaves obovate to round-obovate with tapering leaf-bases; involucre narrowly turbinate, 0.8–1.8 mm long, 0.5–1.2 mm wide; flowers white to pink or red; gravelly slopes from Humboldt and Mineral Co. south to Nye Co. eastward to Lander and Eureka cos. 44. *E. esmeraldense*
 — Peduncles slender, (0.5) 1–2.5 mm long, sharply deflexed; leaves subcordate with cordate leaf-bases; involucre turbinate, 1.2–1.6 mm long, 1–1.4 mm wide; flowers white to greenish white; clayey or sandy-clay soils in southwestern Nye Co. 45. *E. concinnum*
- 52(43). Outer tepals cordate or subcordate at the base, mostly oblong to orbicular 53
 — Outer tepals truncate to obtuse at the base. 58
- 53(52). Involucres deflexed, sessile or on peduncles up to 25 mm long 54
 — Involucres erect on peduncles less than 5 mm long 57
- 54(53). Stems and branches glabrous 55
 — Stems and branches glandular, stoutish and usually short, the crowns flat-topped; peduncles up to 15 mm long; involucre turbinate to campanulate, 1–2.5 mm long; common throughout the southern half of the state ... 51. *E. brachypodium*

- 55(54). Involucres narrowly turbinate to turbinate-campanulate; peduncles up to 25 mm long; tepals as long as to longer than wide, white to pink 56
 — Involucres campanulate or hemispheric, 1–2 mm long; peduncles lacking; flowers yellow to reddish yellow; scattered throughout much of central Nevada 50. *E. hookeri*
- 56(55). Involucres 1.5–3 mm long; plants variously branched; flowers not gibbous at the base; common throughout the southern two-thirds of the state 48. *E. deflexum*
 — Involucres 1–1.5 mm long; plants branched in a series of layers one above the other so as to be pagodalike; flowers gibbous at the base when mature; infrequent in extreme southern Nye Co. 49. *E. rixfordii*
- 57(53). Flowering branches short, less than 3 cm long; plants 1–4 dm high, 3–15 dm across, the crown spreading and flat-topped; extreme southern Nye Co. and Clark Co. 52. *E. bifurcatum*
 — Flowering branches long, 2–20 cm long; plants 2–12 dm high, 1–5 dm across, the crowns erect and strict; southern Nye and Clark cos. 53. *E. insigne*
- 58(52). Flowers smooth or saccate, glabrous or glandular, not strongly pustulose 59
 — Flowers strongly pustulose without; northwestern Nevada 65
- 59(58). Tepals monomorphic, mostly oblong to ovate 60
 — Tepals dimorphic, or, if similar, then glandular-pubescent, pandurate to flabellate or ovate 61
- 60(59). Plants glabrous; involucres 2–3 mm long, 5-toothed; peduncles deflexed, slender; flowers white, 2–2.5 mm long; local in northwestern and northcentral Nevada 54. *E. watsonii*
 — Plants minutely viscid; involucres 1–1.2 mm long, 4-toothed; peduncles erect, filiform; flowers yellow, 1.3–2 mm long; rare and local in Clark Co. 60. *E. viscidulum*
- 61(59). Flowers glabrous without, not glandular 62
 — Flowers glandular without 63
- 62(61). Peduncles glabrous, cernuous to ascending, straight or nearly so, lacking in var. *viminale*; involucres turbinate, 1–1.5 mm wide; flowers white, the outer tepals pandurate, crisped along the margin; common throughout nearly all of the state 55. *E. cernuum*
 — Peduncles glandular, or, if glabrous, then curving downwardly; involucres campanulate, 1.5–2.5 mm wide; flowers white to rose, the outer tepals oblong to oval, not crisped along the margin; infrequent and local across the northern half of the state 56. *E. nutans*
- 63(61). Outer tepals saccate-dilated at the base, usually white when mature; involucres 0.6–1.2 mm long, glabrous; southern Nye, Lincoln, and Clark cos. 57. *E. thomasii*
 — Outer tepals smooth; involucres 1–2 mm long, glabrous or glandular without; flowers yellow 64
- 64(63). Tepals and outer involucre surface glandular-puberulent; bracts glandular on the outer surface; western and southern Nevada 58. *E. pusillum*
 — Tepals glandular-puberulent without; involucres glabrous on the outer surface; bracts villous on the outer surface; Churchill Co. southward through the southern half of the state. 59. *E. reniforme*
- 65(58). Upper involucres peduncled, the peduncles curving upwardly, 1–5 cm long, the involucre tube (1.5) 2–3 mm long; flowers white to yellow, 1–2.5 mm long; achenes 2–2.5 mm long; Washoe, Douglas, and Lyon cos. northward to Humboldt Co. 61. *E. collinum*

- Upper involucre sessile, erect, the peduncles at the lower nodes 1–5 mm long, the involucre tube 1.5–2 mm long; flowers white to rose, 1.2–1.8 mm long; achenes 1.6–2 mm long; rare, Humboldt Co. 62. *E. salicornioides*
- 66(42). Involucres glabrous to hispid or villous without. 67
- Involucres glandular-puberulent without; tepals dimorphic, the outer tepals inflated at the base and middle, white to rose, often with a large purplish spot on the outer tepals; common throughout most of the state. 65. *E. maculatum*
- 67(66). Tepals distinctly dimorphic, the outer whorl oblong-ovate and bisaccate, yellow; infrequent, Lincoln Co. 63. *E. pharnacoides*
- Tepals essentially monomorphic, not saccate, white; northwestern Nevada. 64. *E. spergulinum*
- 68(41). Leaves tomentose on one or both surfaces; stems and branches glabrous to tomentose 69
- Leaves puberulent to villous or sericeous; stems puberulent to villous, with spreading hairs 74
- 69(68). Involucres 2–4 mm long; stems and lower branches thinly floccose or rarely glabrous; flowers 1.5–2 mm long, white to pink; local and often common from Carson City Co. north and eastward to Washoe, Humboldt, and Elko co. 67. *E. vimineum*
- Involucres 1–2 mm long; stems and branches glabrous to densely tomentose, or, if sparsely tomentose, then the flowers yellow to yellowish red 70
- 70(69). Stems glabrous, or, if tomentose, then the tepals glandular and the outer whorl not fan shaped 71
- Stems tomentose to floccose; tepals fan shaped, white or yellow 73
- 71(70). Involucres at the tips of slender branchlets and at the node of dichotomous branchlets or branches, not appressed to the stems, the tube turbinate-campanulate, smooth, 1.5–2 mm long; flowers 1–1.5 mm long with large, roundish, greenish, or, more commonly, reddish bases and white tepal tips; rare and local in Mineral Co. 66. *E. ampullaceum*
- Involucres scattered along and appressed to the stems, the tube narrowly turbinate and slightly angled, 1–1.5 (2) mm long; flowers 0.6–1.5 mm long, yellow, or, if white, then glandular, the base slender and never roundish; common 72
- 72(71). Flowers white, 1.5–2 mm long; stems and branches glabrous or tomentose; common throughout the Great Basin portion of western Nevada. 68. *E. baileyi*
- Flowers yellow, 0.6–1 mm long; stems and branches glabrous; infrequent to locally common in western half of the state south to Nye Co. 69. *E. brachyanthum*
- 73(70). Flowers yellow to red; plants rather densely branched; involucre 1 mm long; widely scattered throughout much of the state. 70. *E. nidularium*
- Flowers white or rarely pale yellow; plants open with few branches; involucre 1.5–2 mm long; widely scattered throughout most of the southern two-thirds of the state 71. *E. palmerianum*
- 74(69). Outer tepals oblong to narrowly ovate, not hooded, white to red, 1–1.5 mm long, glabrous to hispidulous; involucre 4-toothed, 1–1.5 mm long; local but often common on volcanic soils in east central and southern Nevada 72. *E. puberulum*
- Outer tepals fan shaped and hooded, pale yellow to pink, 1.5–2 mm long, hirtellous; involucre 5-toothed, 2–2.5 mm long; rare and local on clayey soils in Nye and White Pine cos. 73. *E. darrovii*

1. *Eriogonum microthecum* Nutt. A highly variable shrubby species common throughout the state mainly on gravelly, clayey, or sandy soils, occasionally on rock outcrops and ledges, 1160–3200 m, mostly in sagebrush communities. Flowering from June through

October. Widespread in the western United States.

Great Basin buckwheat. Low shrubs and shrubs with white or yellow flowers; represented in Nevada by the following varieties:

1. Flowers white, not yellow or yellowish. 2
 — Flowers yellow; shrubs and subshrubs to 5 dm high; western Nevada from Esmeralda Co. northward to Washoe and Humboldt cos. var. *ambiguum*
- 2(1). Tomentum whitish; plants shrubs or well-formed subshrubs; common. 3
 — Tomentum brownish to reddish; plants low, compact subshrubs less than 1.5 dm high; southern Great Basin from Esmeralda and Nye cos. eastward to southern White Pine Co. and Lincoln Co. var. *lapidicola*
- 3(2). Leaves plane; stems and inflorescences floccose to glabrous; shrubs or subshrubs mostly 2–4 dm high; mainly in the Great Basin portion of the state . . . var. *laxiflorum*
 — Leaves revolute; stems and inflorescences densely lanate to tomentose; shrubs mostly 4–15 dm high; mainly in the Mojave Desert portion of the state var. *simpsonii*

The most common expression in the state is var. *laxiflorum* Hook. [*E. confertiflorum* Benth. in DC.; *E. microthecum* var. *confertiflorum* (Benth. in DC.) Torr. & Gray; *E. tenellum* Torr. var. *sessiliflorum* Gand.; *E. microthecum* subsp. *laxiflorum* (Hook.) S. Stokes; *E. microthecum* subsp. *confertiflorum* (Benth. in DC.) S. Stokes; *E. microthecum* var. *spatulare* S. Stokes] occurs mainly in the Great Basin section of Nevada. It is found mostly above 1500 m on slopes and ridges. The var. *simpsonii* (Benth. in DC.) Reveal [*E. simpsonii* Benth. in DC.; *E. effusum* var. *foliosum* Torr. & Gray; *E. microthecum* var. *rigidum* Eastw.; *E. friscanum* M. E. Jones; *E. nelsonii* L. O. Williams; *E. effusum* subsp. *simpsonii* (Benth. in DC.) S. Stokes; *E. effusum* subsp. *nelsonii* (L. O. Williams) S. Stokes; *E. microthecum* subsp. *rigidum* (Eastw.) S. Stokes; *E. microthecum* subsp. *intermedium* S. Stokes; *E. microthecum* var. *friscanum* (M. E. Jones) S. Stokes; *E. microthecum* var. *foliosum* (Torr. & Gray) Reveal] is the common expression in the Mojave Desert region of the state but extends northward into the Great Basin portions of Esmeralda, Lander, Eureka, northern Nye, and White Pine cos. It occurs mostly below 2150 m on flats and slopes. The name var. *simpsonii* replaces var. *foliosum* used previously for this entity (Reveal 1971, 1983). The

var. *lapidicola* Reveal is a dwarfed polygamodioecious subshrub mainly of rocky outcrops and ledges. It is found in Esmeralda, Nye, White Pine, and Lincoln cos. A Jaeger collection (POM) from Potosi Mtn., Clark Co., probably is representative of this variety. A closely related form from Eureka Co. may represent an undescribed expression (see Ripley & Barneby 9330 and 9333—CAS). The yellow-flowered expression in Nevada is now restricted to the var. *ambiguum* (M. E. Jones) Reveal in Munz [*E. tenellum* var. *erianthum* Gand.; *E. microthecum* var. *expansum* S. Stokes] that occurs in western Nevada from Esmeralda Co. northward into Washoe and Humboldt cos. It is a plant of slopes and ridges in the mountain in the southern part of its range, but of flats and foothills in the northern part of the state. The reference to var. *microthecum* (Reveal 1971) in Humboldt Co. is now considered an error, and these plants should be referred to var. *ambiguum*. It is not unusual to find var. *laxiflorum* and var. *ambiguum* growing together.

2. *Eriogonum nummularum* M. E. Jones [*E. kearneyi* Tidestrom; *E. nodosum* var. *kearneyi* (Tidestrom) S. Stokes; *E. dudleyanum* S. Stokes; *E. nodosum* subsp. *monoense* S. Stokes; *E. kearneyi* var. *monoense* (S. Stokes) Reveal; *E. kearneyi* subsp. *monoense* (S. Stokes) Munz ex Reveal]. Kearney's buck-

wheat. A large shrub of sandy places, 1130–1850 m elevation, in saltbush and sagebrush communities, eastern California eastward across the Great Basin portion of Nevada to western Utah, then southward into northwestern Arizona. In Nevada the plant occurs in Esmeralda, Mineral, and Ormsby cos., then eastward to Humboldt, Nye, and Lincoln cos. As now defined, *E. kearneyi* and its var. *monoense* are reduced to synonymy under *E. nummulare*. Plants similar to the var. *monoense* are found in scattered locations in west central Nevada.

3. *Eriogonum corymbosum* Benth. in DC. Corymb-flowered buckwheat. A widespread and variable shrub from Nevada and Arizona to Colorado and New Mexico represented in Nevada by var. *aureum* (M. E. Jones) Reveal [*E. aureum* M. E. Jones; *E. aureum* var. *glutiniosum* M. E. Jones; *E. fruticosum* A. Nels.; *E. crispum* L. O. Williams; *E. microthecum* subsp. *aureum* (M. E. Jones) S. Stokes; *E. microthecum* var. *crispum* (L. O. Williams) S. Stokes; *E. corymbosum* var. *glutiniosum* (M. E. Jones) Reveal] that is a large yellow-flowered shrub of sandy places of southern Utah

and northern Arizona, with a disjunct population near Las Vegas, Clark Co., Nevada. It is in flower from July to mid-October. The name var. *aureum* must now be used over the more familiar var. *glutiniosum* because of a recent change in the International Code (Reveal 1983). A specimen of *E. jonesii* S. Wats. gathered by Wheeler (US) is labeled "Nevada" and "1872," no doubt an error because this plant is restricted to northern Arizona, where it is infrequent.

4. *Eriogonum heermannii* Dur. & Hilg. A variable shrub found nearly throughout Nevada except for the extreme northwestern part, on sandy, clayey, or rocky soils often of a limestone origin, 940–2200 m. Flowering from April to October. A desert shrub from southern California eastward through Nevada to Utah and northern Arizona.

Heermann's buckwheat. A large shrub to densely branched subshrub with green, glabrous or sometimes floccose, scabrellous or smooth branches that can be smooth, angled, or ribbed; represented in Nevada by the following varieties:

- | | | |
|-------|--|-----------------------|
| 1. | Stems smooth, not scabrous or angled, glabrous or floccose | 1 |
| — | Stems scabrous or angled, not smooth or glabrous | 4 |
| 2(1). | Involucres at the tips of the branches not racemosly arranged or only the last two or three so disposed, the inflorescence diffuse, glabrous; northern two-thirds of the state from Nye and Lincoln cos. northward to Humboldt and Elko cos. | var. <i>humilius</i> |
| — | Involucres at the tips of the branches racemosly arranged, the inflorescence open, glabrous or floccose | 3 |
| 3(2). | Branches glabrous; common in Clark Co. and adjacent southwestern Nye Co. | var. <i>clokeyi</i> |
| — | Branches floccose; rare, McCullough Mts., Clark Co. | var. <i>floccosum</i> |
| 4(1). | Stems scabrellous but not sharply and deeply angled; mainly in the Great Basin portion of Nevada from Esmeralda and Nye cos. eastward to Eureka, White Pine, and Lincoln cos. | var. <i>argense</i> |
| — | Stems scabrellous to scabrous, sharply and deeply angled; mainly in the Mojave Desert portion of Nevada from southern Nye Co. and Clark Co. eastward to southern Lincoln Co. | var. <i>sulcatum</i> |

The most common expression in Nevada is var. *humilius* (S. Stokes) Reveal [*E. heermannii* subsp. *humilius* S. Stokes] that occurs in the Great Basin portion of the state from Nye and Esmeralda cos. north and east to Washoe, Humboldt, and southern Elko cos. It occurs

on a variety of soils, but mainly those of volcanic origins. In the Mojave Desert portion of the state is var. *clokeyi* Reveal. It is found in southern Nye Co. and Clark Co. and occurs mainly on limestone foothills and slopes. In the McCullough Mts. of southern Clark Co. is

var. *floccosum* Munz [*E. heermannii* subsp. *floccosum* (Munz) Munz]. All of these varieties are well-defined shrubs and usually occur on gravelly soils. The var. *argense* (M. E. Jones) Munz [*E. howellii* S. Stokes; *E. heermannii* subsp. *argense* (M. E. Jones) Munz] occurs mainly in the Great Basin region, occurring from Esmeralda and Nye cos. eastward to Eureka, White Pine, and Lincoln cos. The var. *sulcatum* (S. Wats.) Munz & Reveal [*E. sulcatum* S. Wats.; *E. heermannii* subsp. *sulcatum* (S. Wats.) S. Stokes] is found mainly in the Mojave Desert region of southern Nye and Lincoln cos. and in Clark Co. The var. *argense* is a small shrub or subshrub, and var. *sulcatum* is a densely branched subshrub. Both occur mainly on limestone cliffs and rocky outcrops.

5. *Eriogonum plumatella* Dur. & Hilg. [*E. palmeri* S. Wats.; *E. nodosum* var. *jaegeri* Munz & Johnst.; *E. plumatella* var. *jaegeri* (Munz & Johnst.) Stokes ex Munz]. Flat-topped buckwheat. A small shrub with glabrous or tomentose branches. Infrequent in extreme southern Clark Co., 1000–1220 m. Flowering from June to November. The species ranges from southern California eastward to extreme southwestern Utah and western Nevada.

6. *Eriogonum fasciculatum* Benth. California buckwheat. Common in the arid Southwest and northwestern Mexico with only var. *polifolium* (Benth. in DC.) Torr. & Gray [*E. polifolium* Benth. in DC.; *E. revolutum* Goodding; *E. fasciculatum* subsp. *polifolium* (Benth. in DC.) S. Stokes; *E. fasciculatum* var. *revolutum* (Goodding) S. Stokes] found in Nevada. A low shrub mainly of the Mojave Desert of California and northern Baja California, Mexico, eastward across southern Nevada to southwestern Utah and western Arizona. Flowering throughout the year. The variety occurs from southern Esmeralda Co. eastward across southern Nye Co. to southern Lincoln Co. on the edge of the Great Basin southward to Clark Co., 520–1800 m elev. Flowering from late March to September.

7. *Eriogonum desertorum* (Maguire) R. J. Davis [*E. chrysocephalum* subsp. *desertorum* Maguire; *E. brevicaulum* Nutt. var. *desertorum* (Maguire) Welsh] Cold desert buckwheat. A compact caespitose perennial with tomentose scapes and yellow flowers of desert ranges and

flats in northeastern Nevada and adjacent northwestern Utah, 1700–2330 m elev. Flowering from late May to mid-July. In Nevada the species is found in Eureka, White Pine, and Elko cos. where it often occurs on clay slopes and flats.

8. *Eriogonum ochrocephalum* S. Wats. Ocher-flowered buckwheat. A compact caespitose perennial with glabrous, glandular, or tomentose scapes and yellow flowers of northwestern Nevada and adjacent northeastern California northward into southeastern Oregon and southern Idaho. Flowering from May to late June at lower elevations and to early September at higher elevations. The var. *ochrocephalum* [*E. nevadense* Gand.] is locally common on clayey outcrops and flats of Lyon and Storey cos. northward through Washoe Co. to the Oregon line. This variety occurs 1310–2470 m elevation, reaching its highest elevations on Peavine Mtn. The scapes of this variety are mainly glabrous, but occasional specimens in Washoe Co. have glandular scapes. The newly proposed var. *alexanderiae* Reveal, characterized by its floccose scapes, occurs mainly east of var. *ochrocephalum*, being found from Mineral Co. northward to Washoe and Pershing cos. It occurs on clay outcrops 1430–2070 m elevation and flowers from late May to early July.

9. *Eriogonum prociduum* Reveal Austin's buckwheat. A compact caespitose perennial with glabrous scapes and yellow flowers known only from northern Washoe Co., Nevada, and adjacent Lassen Co., California, northward to Lake Co., Oregon, 1400–2450 m elevation. Flowering from May to early July. The Nevada site is vouchered by Tichm 8056 (MARY). It is mentioned in the latest installment of the rare and endangered species report for Nevada (Pinzl 1983).

10. *Eriogonum lewisii* Reveal Lewis' buckwheat. A compact caespitose perennial with floccose scapes and yellow flowers known only from northeastern Nevada and adjacent northwestern Utah. In Nevada the species is known from the high mountains of Elko Co. where it occurs above 2400 m elevation. It flowers from late June to early September.

11. *Eriogonum crosbyae* Reveal Crosby's buckwheat. A compact caespitose perennial with floccose scapes and yellow flowers known only from northwestern Nevada and adjacent

southeastern Oregon. In Nevada the species occurs on clay outcrops in northern Washoe and extreme southern Humboldt cos., where it occurs 1600–1700 m elevation. It flowers from late May through July. This species, previously known only from Oregon (Reveal 1981), was first discovered by *Tiehm & Birdsey 5013* (MARY) in Humboldt Co. and more recently in Washoe Co. by Tiehm alone (8040, 8043—MARY).

12. *Eriogonum rosense* Nelson & Kennedy [*E. ochrocephalum* var. *agnellum* Jeps.; *E. ochrocephalum* subsp. *agnellum* (Jeps.) S. Stokes]. Mt. Rose buckwheat. A compact cespitose perennial with glandular scapes and yellow flowers common in the Sierra Nevada, and Sweetwater and White mountains of California northward into Nevada from Esmeralda Co. northward to Washoe Co., where it occurs (2000) 2440–3300 m elevation. It flowers from July to early September.

13. *Eriogonum beatleyae* Reveal Beatley's buckwheat. A compact cespitose perennial with glandular and eglandular villous scapes and yellow to cream-colored flowers of extreme east central California and Nevada. Local and scattered on clayey soils in west central and central Nevada from northern Nye Co. northward to Eureka and Lander cos., then westward to Churchill and Mineral cos. 1700–2320 (2750) m elevation. It flowers from May to August. Since this species was described (Reveal 1972), *E. beatleyae* has been found in a variety of sites in Nevada. For the most part the species is found at elevations lower than that of *E. rosense*, but a recent collection (*Ertter & Strachan 2804*—MARY) from the north end of the Monitor Range at 2750 m elevation is probably best referred to *E. beatleyae* rather than *E. rosense* as I originally annotated the collection. Cream-colored specimens of *E. beatleyae* occur in Nye, Churchill, Lander, and Eureka cos.

14. *Eriogonum anemophilum* Greene Wind-loving buckwheat. A compact cespitose perennial with floccose scapes and white flowers endemic to Nevada; restricted to the West Humboldt Mts. of Pershing Co. and the Jackson Mountains and Sonoma Range of Humboldt Co. 2500–2800 m elevation. Flowering from June to August.

15. *Eriogonum tiehmii* Reveal Tiehm's buckwheat. A compact cespitose perennial

with floccose scapes and cream-white glandular flowers endemic to Nevada; restricted to white clay hills near Cave Springs, Esmeralda Co., 1830 m elevation. Flowering from early May to late July. This new species may be quickly recognized by its glandular tepals and its longer, acutely toothed involucre. The floccose scapes distinguishes Tiehm's buckwheat from the cream-colored specimens of *E. beatleyae*.

16. *Eriogonum kingii* Torr. & Gray King's buckwheat. A compact cespitose perennial with floccose to glabrous scapes and greenish yellow to pale yellow flowers endemic to the Ruby Mts. and East Humboldt Range of Elko Co., and in the Cherry Creek Range of northern White Pine Co., Nevada, 2400–3170 m elevation. It flowers from June to August.

17. *Eriogonum argophyllum* Reveal Sulphur Hot Springs buckwheat. A compact perennial with floccose scapes and yellow flowers endemic to mineralized soil at Sulphur Hot Springs, Elko Co., Nevada. It occurs at 1850 m elevation and flowers from June to July.

18. *Eriogonum gracilipes* S. Wats. [*E. kennedyi* subsp. *gracilipes* (S. Wats.) S. Stokes; *E. ochrocephalum* var. *gracilipes* (S. Wats.) J. T. Howell]. White Mountain buckwheat. A compact perennial with glandular-hairy scapes and white to reddish flowers of the White Mountains and adjacent portions of the Sierra Nevada of east central California and adjacent Esmeralda Co., Nevada. It is found 3000–4000 m elevation, but in Nevada it is at 3200 m. The plant flowers from July to September.

19. *Eriogonum holmgrenii* Reveal Holmgren's buckwheat. A compact perennial with floccose and stipitate-glandular scapes and white to reddish flowers endemic to the Snake Range of White Pine Co., Nevada, where it occurs 2870–3700 m elevation. It flowers from July to September.

20. *Eriogonum villiflorum* A. Gray Shaggy-haired buckwheat. A compact perennial of 10–20 rosettes, prostrate villous flowering stems, and densely pilose white flowers with glabrous achenes. Local and infrequent in western Utah and eastern Nevada on gravelly flats and slopes 1900–2200 m elevation. In Nevada the species is known only from White

Pine, Lincoln, Nye, and Eureka cos. It flowers from May to early June.

21. *Eriogonum shockleyi* S. Wats. A variable species rather common throughout the Intermountain Region and along its immediate borders in the western United States, mostly on gravelly, clayey or sandy soils, or on rocky outcrops and ledges, 730–2750 m elevation. Flowering from May through August.

Shockley's buckwheat. Cespitose to pulvinate perennials with up to a hundred or more rosettes with erect, floccose to tomentose stems, and white, reddish or yellow densely pilose flowers and pubescent achenes. The var. *shockleyi* [*E. villiflorum* var. *candidum* M. E. Jones; *E. acaule* var. *shockleyi* (S. Wats.) M. E. Jones; *E. pulvinatum* Small; *E. shockleyi* subsp. *candidum* (M. E. Jones) S. Stokes] is common in Nevada and ranges from Mineral and Esmeralda cos. eastward across Nye Co. to Lincoln Co., and northeastwardly to Elko Co. This plant occurs mainly on gravelly to clayey soils throughout this range 1500–2100 m elevation. Both white- and yellow-flowered specimens belong to this variety. A population at Baking Powder Flat in Spring Valley, White Pine Co., is on deep moving sand, and the resulting plants are large, open, loose mats (*Emmel* 199—CAS; *Reveal* 4845—MARY, US and elsewhere). This may prove to represent a new and as yet undescribed variety. A M. E. Jones collection (POM) gathered at Pioche, Lincoln Co., 31 August 1912, is similar to *E. soredium* Reveal which is now known only from Beaver Co., Utah. Attempts to rediscover specimens similar to the Jones collection have failed, and the extant specimen is not suitable to adequately determine its identity.

22. *Eriogonum wrightii* Torr. ex Benth. in DC. A highly variable cespitose to subshrubby or shrubby perennial of western and southern Nevada on sandy to gravelly soil, 1280–2450 m. Flowering from late June to early November. Widespread in North America from northern California and western Nevada southward to Baja California, Mexico, eastward through Arizona and New Mexico to western Texas southward to central Mexico.

Wright's buckwheat. Low shrubs or subshrubs with small elliptic leaves and white flowers. The var. *wrightii* is locally common in the McCullough Mts. and infrequent to

rare in the Spring Mts., Clark Co. It is a distinct shrub and occurs from extreme southeastern California eastward across southern Nevada and southwestern Utah to Texas southward to central Mexico. The var. *subscaposum* S. Wats. [*E. wrightii* subsp. *subscaposum* (S. Wats.) S. Stokes] is a low subshrub of the mountains of western Nevada from the Sweetwater Mts. of Mineral Co. (and to be expected in the Nevada portion of the White Mts.) northward to southern Washoe Co. Other varieties are found in California and adjacent western Mexico.

23. *Eriogonum panamintense* Morton An erect herbaceous perennial with large leaves and white flowers on loam to gravelly soil in the desert ranges of southwestern Nevada and adjacent southeastern California, 1830–2600 m. Flowering from mid-June through September.

Panamint buckwheat. The var. *panamintense* [*E. reliquum* S. Stokes; *E. racemosum* var. *desertorum* S. Stokes] with numerous solitary involucre and large elliptic to ovate or obovate leaves is rather common in the mountains of southwestern Nevada from Mineral and extreme western Nye Co. southward to the Spring Mts. and Sheep Range of Clark Co. This variety is similar to *E. rupinum*. The var. *mensiscola* (S. Stokes) Reveal in Munz [*E. panamintense* subsp. *mensiscola* (S. Stokes) Munz] with few solitary involucre and generally rotund leaves is restricted to the Sheep Range of Clark Co., Nevada, and the Death Valley region of Inyo Co., California.

24. *Eriogonum rupinum* Reveal Canyon buckwheat. A stout erect perennial herb with large, oblong to elliptic leaves and 3–5 solitary involucre racemosely arranged at the tips of the branches, on gravelly to sandy (rarely clayey) soil on the foothills and canyon bottoms 1830–2600 (3489) m, in the mountains of central Nevada to eastern California. Flowering mainly from July to early October. In Nevada, the species occurs mostly below 3100 m from Lander and Nye cos. westward to Mineral and Esmeralda cos. It is a stouter plant than *E. panamintense*.

25. *Eriogonum racemosum* Nutt. [*E. orthocladon* Torr. in Sitgr.; *E. obtusum* Benth. in DC.]. Redroot buckwheat. An erect, graceful perennial herb with large, variably shaped

leaves on sandy to gravelly soil from northwestern New Mexico and southwestern Colorado westward across northern Arizona and most of Utah to central Nevada. Mostly 1220–2500 m, and flowering from June to October. In Nevada the species is rather common in the desert ranges of Nye, White Pine, and Lincoln cos., but infrequent and local in the Sheep Cos., Clark Co.

26. *Eriogonum nudum* Dougl. ex Benth. A highly variable perennial herb with numerous varieties. Widespread and common in the Pacific coast states from Washington to Baja California Norte eastward to western Nevada from sea level to 3400 m. Flowering from April through September.

Naked-stemmed buckwheat. Erect perennial herbs with small, variably shaped leaves and glabrous to tomentose stems; currently represented in Nevada by four poorly defined varieties. The montane expression is the var. *deductum* (Greene) Jeps. [*E. deductum* Greene] characterized by glabrous stems and solitary involucre. It occurs from Mineral Co. northward in the Sierra Nevada and adjacent ranges to southern Washoe Co. The var. *nudum* [*E. latifolium* subsp. *nudum* (Dougl. ex Benth.) S. Stokes] is rare in Nevada. It is known only from two old Nevada collections (Kennedy 962 and Peterson 279—NESH) gathered near Verdi, Washoe Co. This variety occurs from Washington and Oregon southward into northern California. It is characterized by clustered involucre and glabrous stems. The distinction between the two variants in low elevation populations is generally blurred in the Sierra Nevada, and the difficulties are repeated in Nevada. The var. *oblongifolium* S. Wats. [*E. harfordii* Small; *E. sulphureum* Greene; *E. capitatum* A. A. Heller; *E. latifolium* subsp. *sulphureum* (Greene) S. Stokes] occurs from Douglas Co. northward to southern Washoe Co. This variant ranges from southern Oregon to northern California and adjacent Nevada. It is characterized by a tomentose stem and pubescent

flowers. The poorly differentiated var. *pubiflorum* Benth. in DC. occurs in northern Washoe Co. and southwestern Humboldt Co. It differs from var. *oblongifolium* in having glabrous stems along with its pubescent flowers. At present only the yellow-flowered expression of var. *pubiflorum* has been discovered in Nevada. The var. *gramineum* (S. Stokes) Reveal is to be sought in the warm desert mountain ranges of extreme southwestern Nye Co. that border Death Valley. It has inflated, glabrous stems and yellow, pubescent flowers, and it is found on limestone outcrops. All occur 1500–2500 m elevation in Nevada and flower from June through September.

27. *Eriogonum elatum* Dougl. ex Benth. A tall, erect, perennial herb with large lanceolate to lance-ovate leaves and slightly pubescent flowers of Washington and Idaho south to central California and central Nevada 1200–2900 m. Flowering mainly from May through August.

Tall buckwheat. The var. *elatum* [*E. elatum* var. *erianthum* Gand.] occurs in the mountains and foothills of Nevada from Nye Co. northward. It is often locally common, although individual populations can be rather scattered. The var. *villosum* Jeps., characterized by its pubescent stems, is restricted in Nevada to the foothills of the Sierra Nevada from Douglas Co. northward to southern Washoe Co. It is rather infrequent.

28. *Eriogonum ovalifolium* Nutt. A widespread and highly variable, compact perennial herb of many ecological niches found in the Nevada and throughout the western United States and southwestern Canada, 920–3700 m. Flowering from April to August.

Cushion buckwheat. A compact to caespitose herb with pubescent scapes and white to yellow or reddish, strongly dimorphic tepals (except in some high elevation expressions) in capitate terminal inflorescences mostly in the sagebrush communities throughout the state; consisting of the following varieties:

1. Leaves mostly more than 1 cm long; scapes 5–30 (or more) cm long; involucre (3.5) 4–7 mm long, turbinate; flowers (3) 4–7 mm long; plants mostly below 2450 m 2
- Leaves mostly less than 1 cm long; scapes up to 6 (10) cm long; involucre 2.5–4.5 mm long, turbinate-campanulate; flowers 2.5–4 mm long; plants mostly above 2450 m except in the Mt. Rose area of west central Nevada 3

- 2(1). Flowers white var. *ovalifolium*
 — Flowers yellow var. *nevadense*
- 3(1). Flowers white 4
 — Flowers yellow; endemic to the Toquima and Toiyabe ranges of Nye Co.
 var. *caelestinum*
- 4(3). Leaves without brown-edged margins; plants mainly of high elevation sites 5
 — Leaves with distinct brown-edged margins; plants mainly of low elevation sites 6
- 5(3). Leaves densely white-tomentose on both surfaces; widespread and common
 var. *nivale*
 — Leaves greenish white pubescent at least on the upper surface; infrequent,
 Elko Co. var. *depressum*
- 6(4). Leaves densely lanate tomentose on both surfaces, the tomentum brownish, the
 brown edge pronounced; plants of the Mt. Rose area in Carson City and southern
 Washoe cos. var. *eximium*
 — Leaves white-tomentose on both surfaces, the tomentum whitish, the brown
 edge thin; plants endemic to the Steamboat Springs area of southern Washoe Co.
 var. *williamsiae*

The var. *ovalifolium* [*E. purpureum* (Nutt.) Benth. in DC.; *E. davisianum* S. Stokes] is the low elevation expression with white flowers, and var. *nevadense* Gand. [*E. orthocaulon* Small; *E. ovalifolium* var. *celsum* A. Nels.; *E. ovalifolium* var. *orthocaulon* (Small) C. L. Hitchc.] has yellow flowers. The var. *ovalifolium* is widespread throughout the Intermountain Region section of Nevada, and var. *nevadense* occupies essentially the same area although it is more common in the north than in the south. Two other low elevation variants are var. *eximium* (Tidestrom) J. T. Howell [*E. eximium* Tidestrom; *E. ovalifolium* subsp. *eximium* (Tidestrom) S. Stokes] and var. *williamsiae* Reveal. Both are found in the Mt. Rose area of southern Washoe Co. and adjacent Carson City Co., with var. *williamsiae* restricted to the Steamboat Springs area, Washoe Co. The former has larger leaves with distinctly brown-edged leaf-blades, and the latter has small leaves arranged in densely compact mats. Three high-elevation variants occur in Nevada. The most common phase is var. *nivale* (Canby in Cov.) M. E. Jones [*E. nivale* Canby in Cov.; *E. rhodanthum* Nels. & Kenn.] which has densely white-tomentose leaves and white flowers. It is rather common throughout the state. The var. *depressum* Blank., with its greenish white tomentose leaves and white flowers, is infrequent in Elko Co. The high elevation yellow-flowered variety is the var.

caelestinum Reveal, that is restricted to the Toquima and Toiyabe ranges of northern Nye Co.

29. *Eriogonum strictum* Benth. A branched, erect perennial herb with white or yellow dimorphic tepals ranging from northern Washington south to northern California, and eastward to western Montana south to northern and northwestern Nevada mainly below 2600 m. Flowering from May through August.

Blue Mountain buckwheat. Erect perennial herbs with branched inflorescences bearing white or yellow dimorphic tepals; represented in Nevada by two varieties of subsp. *proliferum* (Torr. & Gray) S. Stokes differing chiefly on flower color. The var. *anserinum* (Greene) R. J. Davis [*E. anserinum* Greene; *E. strictum* subsp. *anserinum* (Greene) S. Stokes; *E. ovalifolium* subsp. *flavissimum* S. Stokes; *E. strictum* var. *flavissimum* (S. Stokes) C. L. Hitchc.; *E. proliferum* subsp. *anserinum* (Greene) Munz] has yellow flowers and is the common expression. It is found from western Elko Co. across Humboldt Co. to Storey and Washoe cos. The var. *proliferum* (Torr. & Gray) Reveal [*E. proliferum* Torr. & Gray; *E. cusickii* Gand. var. *californicum* Gand.] is white flowered and occurs in Elko Co., although a Kennedy collection (1381—NESH, UTC) presently referred to this variety has been found at Broncho Creek in Washoe Co. This species differs from *E.*

ovalifolium in having branched rather than capitate inflorescences.

30. *Eriogonum saxatile* S. Wats. [*E. bloomeri* Parish; *E. stokesae* M. E. Jones; *E. saxatile* var. *stokesae* (M. E. Jones) S. Stokes ex Jones; *E. saxatile* subsp. *multicaule* S. Stokes]. Rock buckwheat. A low, loosely to densely matted perennial herb with broadly obovate to rotund leaves and white to cream flowers on elongated, winged stipes of sandy, decomposing soil in desert ranges of southern California and adjacent Nevada, 1220–3400

m. Flowering from May to late July. In Nevada the species is rather local in Nye and southern Esmeralda cos.

31. *Eriogonum umbellatum* Torr. A large and exceedingly complex species found throughout most of western North America from southern Canada to near the Mexican border on a wide variety of habitat and from near sea level to nearly 4000 m. Flowering from May to October. The species is composed of more than 30 varieties, several of which have as yet to be described formally. In Nevada the following variants are known:

- | | | |
|-------|---|----|
| 1. | Primary branches of the inflorescences simple, not branched | 1 |
| — | Primary branches of the inflorescences branched | 9 |
| 2(1). | Flowers bright yellow | 3 |
| — | Flowers mostly whitish to red, occasionally pale yellow; plants subshrubs (see also the shrubby var. <i>vernum</i>) | 7 |
| 3(2). | Leaves pubescent at least below on plants in full anthesis | 4 |
| — | Leaves glabrous on both surfaces on plants in full anthesis | 6 |
| 4(3). | Leaves densely tomentose on the lower surface even in fruiting plants; plants low, spreading subshrubs; Elko Co. var. <i>umbellatum</i> | |
| — | Leaves sparsely pubescent on both surfaces or only glabrate on the upper surface on plants in full anthesis; plants upright to spreading subshrubs or shrubs | 5 |
| 5(4). | Flowers less than 7 mm long, always sulphur yellow; involucre tubes 2–3.5 mm long; plants late spring to summer flowering subshrubs or small shrubs, common throughout nearly all of Nevada except for Elko, Clark, and perhaps White Pine cos. var. <i>nevadense</i> | |
| — | Flowers 6–10 mm long, sulphur yellow or infrequently cream colored; involucre tubes 1.5–2.5 mm long; plants spring flowering shrubs endemic to Nye Co. var. <i>vernum</i> | |
| 6(3). | Inflorescences umbellate or merely subcapitate; widespread at lower elevations from eastern Humboldt Co. south to Nye Co., then eastward to Elko and White Pine cos. var. <i>aureum</i> | |
| — | Inflorescences capitate or nearly so; rare in subalpine and alpine habitats in the Ruby and East Humboldt mts. var. <i>porteri</i> | |
| 7(2). | Leaves sparsely tomentose to glabrous on both surfaces or with the tomentum slightly more below than above; flowers 3–8 mm long, whitish, cream-colored, or pale yellow to reddish brown to rose or pink with large, colored midribs | 8 |
| — | Leaves densely tomentose below, bright green to olive-green and floccose to glabrous above; flowers cream colored, 3–7 mm long; to be expected in Elko Co. but currently unknown for Nevada var. <i>majus</i> | |
| 8(7). | Flowers cream colored to pale yellow with tannish midribs; mostly northern Nevada from Nye Co. northward. var. <i>dichrocephalum</i> | |
| — | Flowers reddish brown to pink with reddish to purplish midribs; Spring Mts., Clark Co., and northward to extreme southern Nye Co. and adjacent southwestern Lincoln Co. var. <i>versicolor</i> | |
| 9(1). | Flowers yellow or strongly yellowish | 10 |

- Flowers cream colored or reddish brown to rose or pink, not bright yellow 11
- 10(9). Leaves densely tomentose below, thinly floccose or more commonly glabrous and green above; flowers bright yellow, (5) 6–8 mm long; Sierra Nevada from Lake Tahoe area northward to southern Washoe Co. var. *furcosum*
- Leaves evenly thinly pubescent to glabrous on both surfaces; flowers bright yellow, 6–7 mm long; desert ranges from Esmeralda Co. south to Clark Co. eastward to Lincoln and White Pine cos. var. *subaridum*
- 11(9). Flowers cream colored or whitish; plants forming low shrubs or subshrubs up to 8 dm tall; Lincoln and White Pine cos. var. *juniporinum*
- Flowers reddish brown to rose or pink with large reddish or purplish midribs; plants forming low, spreading, matted subshrubs mostly less than 2 dm tall; Spring Mts., Clark Co. var. *versicolor*

Sulphur-flower. The Rocky Mountain expression, var. *umbellatum*, occurs in Nevada only in the high mountains of Elko Co., it being found typically in the Ruby and East Humboldt mts., but only infrequently in the mountains to the north. More widespread in the state is the glabrous-leaved expression var. *aureum* (Gand.) Reveal [*E. neglectum* Greene; *E. azaleastrum* Greene] that differs from the typical variant only in this single feature; it is generally found at a lower elevation than var. *umbellatum*. The var. *aureum* occurs from eastern Humboldt Co. south to northern Nye Co. eastward. The high elevation expression related to var. *aureum* is var. *porteri* (Small) S. Stokes [*E. porteri* Small] that occurs in the East Humboldt and Ruby mts. generally above 2750 m elevation. All three variants are more common in the Rocky Mountains to the east and reach their most westward point of distribution in Nevada.

The most common phase of *Eriogonum umbellatum* in Nevada is the western var. *nevadense* Gand. [*E. reclinatum* Greene; *E. heracleoides* var. *virde* Gand.; *E. umbellatum* var. *californicum* Gand.]. It is found throughout the Great Basin portion of Nevada from Nye Co. northward. It flowers mainly in the summer, forming well-defined subshrubs in most populations and is typically found at 1400–2900 m elevation. The variety is common in the mountains of western Nevada, but it becomes less frequent in the central and eastern portions of the state. At times, in Elko Co. for example, the differences between var. *umbellatum* and var. *nevadense* are obscured. The early spring-flowering expression related to var. *nevadense* is the northern Mojave Desert–southern Great Basin expression var.

vernum Reveal. This plant, typically a large and well-defined shrub, is in full anthesis in May and continues to blossom into June. Bright yellow-flowered plants are common, but on the Nevada Test Site scattered populations are dominated by pale yellow-flowered individuals. At higher elevations, and mainly in the northern half of the state, is the cream-colored expression close to var. *nevadense*, the var. *dichrocephalum* Gand. [*E. aridum* Greene; *E. umbellatum* subsp. *aridum* (Greene) S. Stokes; *E. umbellatum* var. *aridum* (Greene) C. L. Hitchc.]. Unlike the subshrubby var. *nevadense*, the var. *dichrocephalum* is often more similar in habit to the spreading and mat-forming var. *umbellatum*. The var. *nevadense* occurs from the Sierra Nevada of California northward to southern Oregon and eastward across Nevada, and the var. *vernum* is endemic to Nye Co., Nevada. Both are found mostly below 2440 m elevation. The var. *dichrocephalum*, on the other hand, ranges from southeastern Oregon southward in the Sierra Nevada to Inyo Co., California, then eastward across Nevada and Utah to extreme western Colorado. This variety can occur above 3100 m but is most common 2200–2800 m elevation. Yet to be discovered in Nevada is the widespread, northern expression, var. *majus* Hook. [*E. subalpinum* Greene; *E. umbellatum* subsp. *majus* Piper; *E. umbellatum* subsp. *subalpinum* (Greene) S. Stokes; *E. umbellatum* var. *subalpinum* (Greene) R. J. Davis]. This is a mat-forming perennial with pale, cream-colored tepals, and olive-green leaves that are glabrous (or nearly so) on the upper surface. The var. *majus* occurs from British Columbia, Canada, southward to southern Oregon, then eastward

across Idaho to Alberta and southward in the Rocky Mts. to Colorado.

The remaining variants of *Eriogonum umbellatum* differ from those mentioned above in having branched flowering inflorescences with each node subtended by a whorl of bracts. The majority of these expressions are found in the southern part of the state. The one exception is the var. *furcosum* Reveal that is restricted to the Sierra Nevada portion of Nevada in the Lake Tahoe region. This expression was previously referred in the literature to the more northern and less shrubby var. *ellipticum* (Nutt.) Reveal [*E. stellatum* Benth.; *E. ellipticum* Nutt.; *E. umbellatum* var. *stellatum* (Benth.) M. E. Jones; *E. umbellatum* subsp. *stellatum* (Benth.) S. Stokes] (see Reveal 1983). The most common expression in southern Nevada is the var. *subaridum* S. Stokes [*E. biumbellatum* Rydb.; *E. ferrissii* A. Nels.; *E. umbellatum* subsp. *ferrissii* (A. Nels.) S. Stokes; *E. umbellatum* subsp. *subaridum* (S. Stokes) Munz]. It differs from the var. *furcosum* in the degree of pubescence on the leaves. The var. *subaridum* ranges from Esmeralda Co. eastward across the state to Eureka and White Pine cos., then southward to Lincoln and Clark cos. In Clark Co., the var. *subaridum* is restricted to the Sheep and Spring mts. The variety occurs at 1830–2800 m elevation. A cream-colored expression related to the var. *subaridum* is the newly proposed var. *juniporinum* Reveal, which occurs in Lincoln and White Pine cos. and reappears again in the desert ranges of San Bernardino Co. in southeastern California. In Nevada var. *juniporinum* occurs at 1830–2500 m elevation. Also in the southern desert ranges is the rose to pink- or reddish-tepaled var. *versicolor* S. Stokes, a montane phase that may or may not have a compound inflorescence. It ranges from northern Clark and southern Nye cos., Nevada, westward to eastern Inyo and southern Mono cos., California. It occurs at 1980–2750 m elevation.

32. *Eriogonum heracleoides* Nutt. Wyeth's buckwheat. A matted perennial herb with branched flowering inflorescences, cream or whitish yellow flowers, and a whorl of bracts about midlength along the pubescent, erect, flowering stem. The species occurs from southern British Columbia, Canada, southward to northern California,

then east to western Montana, Wyoming, and Colorado. Common in the mountains of northern Nevada from northern Washoe Co. eastward to Elko Co. and southward into Lander and northern White Pine Co. at 1740–3100 m elevation. Flowering from June through August. A Stokes collection (OKL) from Verdi, Washoe Co., is likely mislabeled.

33. *Eriogonum sphaerocephalum* Dougl. ex Benth. A variable species of the northwestern United States from Washington and Idaho southward to northern California and northern Nevada.

Round-headed buckwheat. A low, woody subshrub with yellow or ochroleucous, villous-tomentose flowers and achenes with a slightly pubescent beak; mostly on volcanic soils 920–2140 m elevation. Flowering from May to mid-July. The yellow-flowered expression is the var. *sphaerocephalum*. It occurs from Washoe Co. southward to the Carson City area (*M. E. Jones s.n.*—POM) eastward across Humboldt and Eureka cos. to Elko Co., mostly at 1430–1950 m elevation. The pale-flowered expression, var. *halimoides* S. Stokes, is restricted to northern Washoe Co., northwestern Humboldt Co., and northern Elko Co. It occurs mostly at 1740–2130 m elevation.

34. *Eriogonum douglasii* Benth. in DC. Douglas' buckwheat. Low, spreading, matted, and caespitose perennial herbs with yellow to ochroleucous, densely to sparsely villous-tomentose flowers, a pubescent, 3-angled beak, and a whorl of leaves about midlength along the flowering stems. The species ranges mostly in the sagebrush and woodland communities of central Washington south to east central California and western Nevada; it occurs at 610–2450 m elevation. The Nevada expression is the yellow-flowered var. *douglasii* [*E. caespitosum* var. *douglasii* (Benth. in DC.) M. E. Jones; *E. caespitosum* subsp. *douglasii* (Benth. in DC.) S. Stokes]. It is known only from the Peavine area of Washoe Co., where it occurs at 1600–2140 m elevation. Flowering mainly from April to late July.

35. *Eriogonum caespitosum* Nutt. [*E. andinum* Nutt., *E. sericoleucum* Greene ex Tidestrom; *E. sphaerocephalum* var. *sericoleucum* (Greene ex Tidestrom) S. Stokes]. Caespitose buckwheat. Low, compact, caespitose peren-

nial herbs with a single involucre atop the scapose flowering stem bearing yellow, densely pilose to villous-pubescent flowers, and glabrous to sparsely pubescent achenes. Widespread and common from eastern California across Nevada to northern Utah and northwestern Colorado, and north to southeastern Oregon, southern Idaho, western Montana, and western Wyoming. In Nevada the species is common throughout the Intermountain Region portion of the state. It occurs at 1400–3400 m elevation. Flowering from May through August.

36. *Eriogonum marifolium* Torr. & Gray Marum-leaved buckwheat. Low, spreading, loosely matted, dioecious perennial herb with green to olive-green leaves and numerous nonrooting caudices, the flowers yellow, glabrous, with those of the male plants smaller than the female plants. Common in sandy or pumice soils in the Sierra Nevada of California northward to central Oregon, and eastward to Humboldt Co., Nevada, mostly 1070–3400 m elevation. Flowering from June to August. In Nevada the species occurs in the Sierra Nevada portion of the state and is isolated on the Pine Forest Range of western Humboldt Co., mostly 2000–2930 m elevation. The closely related Gray-leaved buckwheat, *E. incanum* Torr. & Gray, which is characterized with densely pubescent leaves, is not known to occur in Nevada but is to be expected in the Sierra Nevada portion of the state.

37. *Eriogonum latens* Jeps. [*E. monticola* S. Sacks]. Onion-flowered buckwheat. Low, compact perennial herbs with short-pilose leaves and an erect, slender, essentially glabrous flowering scape bearing a single cluster of involucre with numerous cream to pale yellow flowers. Local and infrequent in the White Mts. of Esmeralda Co., Nevada, southward to the Inyo Mts. of Inyo Co., California, and along the eastern Sierra Nevada in northern Inyo Co., mostly 2000–3400 m elevation. Flowering from late June to late August.

38. *Eriogonum lobbi* Torr. & Gray A variable species of the numerous soil types in the mountains of northern and eastern California, and in western Nevada, that occurs mostly at 1310–3700 m elevation. Flowering from June through August.

Lobb's buckwheat. Low, spreading, small to robust, compact to densely matted peren-

nial herbs with stoutish caudex branches bearing prostrate to decumbent or weakly erect flowering stems with large (5–15 mm long), solitary involucre bearing white to rose, glabrous flowers. The high elevation phase in Nevada is var. *lobbii* [*E. lobbii* var. *minus* Torr. & Gray] that occurs in the Sierra Nevada portion of the state in Washoe Co. The plant may be found at approximately 2150–2870 m elevation on granitic soils. The more common expression in Nevada is the endemic var. *robustum* (Greene) M. E. Jones [*E. robustum* Greene]. This phase is much more robust, with larger leaves, involucre, and flowers and erect or nearly so flowering stems. It occurs on altered andersite soils in Storey and Washoe cos. at 1310–2440 m elevation.

39. *Eriogonum inflatum* Torr. & Frem. Desert trumpet. A highly variable plant of arid regions of western North America from California eastward to Colorado southward to northwestern Mexico mostly on sandy, volcanic soils below 2100 m elevation. Flowering nearly throughout the year but mostly from March to October. Our expression, var. *inflatum*, is an annual or perennial herb with inflated stems and branches bearing numerous, erect, filiform to capillary peduncles of 5-toothed involucre and yellow, pubescent flowers. The variety is the common expression in Nevada; it may be found nearly throughout the state except the northernmost tier of counties. In southern Arizona southward is the var. *deflatum* I. M. Johnston. In northeastern Utah and adjacent states is the var. *fusifforme* (Small) Reveal. The first two varieties are first-year flowering perennials, but the latter is strictly an annual.

40. *Eriogonum contiguum* (Reveal) Reveal [*E. inflatum* var. *contiguum* Reveal]. Ash Meadow buckwheat. Erect annual herbs with slender, basally glandular stems and branches bearing numerous erect to spreading capillary peduncles bearing 5-toothed involucre and yellow, pubescent flowers. The species is restricted to the Mojave Desert region from Ash Meadows southward to the Pahrump Valley area of southern Nye Co., Nevada, then westward to the Death Valley region south to Tecopa, Inyo Co., California. It is found from near sea level to 762 m elevation. Flowering from April to late June.

41. *Eriogonum trichopes* Torr. Little trumpet flower. Erect annual herbs with slender or inflated, glabrous or occasionally basally glandular stems and branches bearing numerous, erect capillary peduncles of 4-toothed involucre and yellow, pubescent flowers. The species ranges from southern California, Nevada, and Utah southward to northwestern Mexico and eastward to southern New Mexico. It occurs from below sea level to 2000 m elevation and flowers throughout the year. In Nevada the var. *trichopes* [*E. cordatum* Torr. & Frem.; *E. trichopodium* Torr. ex Benth.; *E. trichopodium* var. *minor* Benth. in DC.; *E. trichopes* subsp. *cordatum* (Torr. & Frem.) S. Stokes] occurs mainly in the Mojave Desert portion of the state from southern Nye and Lincoln cos. southward to Clark Co., 300–1770 m elevation. Flowering mainly from late March to early July. The Fremont collection of *E. cordatum*, described prior to that of *E. trichopes*, has been lost and the description is not clear enough to determine its actual identity. It is possible this is an early name for *E. trichopes* or *E. contiguum*. It is not likely an earlier name for *E. glandulosum*. All three species occur in the eastern Mojave Desert area of California where the type of *E. cordatum* was gathered.

42. *Eriogonum howellianum* Reveal Howell's buckwheat. Low, spreading, pilose-hirsutulous and glandular annual herbs with ascending peduncles bearing turbinate-campanulate involucre with dense pilose, yellow flowers. Local and rare on dry sandy soil in the desert ranges of the Great Basin from western Utah eastward across Nevada from Elko, White Pine, and Lincoln cos. to Nye and north central Clark cos., mostly 1500–1900 m elevation. Flowering from late June through August.

43. *Eriogonum glandulosum* (Nutt.) Nutt. ex Benth. in DC. [*E. trichopes* subsp. *glandulosum* (Nutt.) S. Stokes; *E. glandulosum* var. *carneum* J. T. Howell; *E. carneum* (J. T. Howell) Reveal in Munz]. Gambel's buckwheat. Low, spreading, pilose-hirsutulous and glandular annual herbs with deflexed peduncles bearing narrowly turbinate involucre with dense pilose, white to pinkish flowers. Local and rare on sandy soil in the desert ranges of the northern Mojave Desert from southwest-

ern Nye and northwestern Clark cos., Nevada, westward into eastern Inyo Co. and northeastern San Bernardino cos., California. The species occurs at 880–1600 m elevation. Flowering from June through August.

44. *Eriogonum esmeraldense* S. Wats. A species of arid mountain ranges and foothills in the western portion of Nevada and adjacent eastern California, mostly at 1770–3170 m elevation. Flowering from June to late August.

Esmeralda buckwheat. Diffusely branched, erect, annual herbs with slender to filiform peduncles bearing small, narrowly turbinate, 5-toothed involucre with white, glabrous flowers. The var. *esmeraldense* is the widespread and common phase being found in Nevada in Humboldt, Esmeralda, Mineral, and Nye cos. The endemic var. *toyibense* J. T. Howell is restricted to the Toquima and Toyibabe ranges in Lander and northwestern Nye cos. It differs from var. *esmeraldense* in having scattered glands at the very base of the stem.

45. *Eriogonum concinnum* Reveal Darin's buckwheat. Erect annual herb with slender to fistulose, glabrous stems bearing erect or spreading peduncles with narrow involucre and white, glabrous flowers. Endemic to the Nevada Test Site regions of southern Nye Co., occurring at 1480–2050 m elevation. Flowering from late May through August.

46. *Eriogonum rubricaulae* Tidestrom [*E. laetum* S. Stokes; *E. trichopes* var. *rubricaulae* (Tidestrom) S. Stokes]. Lahontan Basin buckwheat. Erect annual herbs with slender to fistulose, glabrous stems bearing erect peduncles with broad involucre and pale yellow to yellow, glabrous flowers. Endemic to the Lahontan portion of the western Great Basin of Nevada from Mineral and Nye cos. northward to Humboldt Co., mostly 1290–1830 m elevation. Flowering from late May to early August.

47. *Eriogonum lemmonii* S. Wats. Lemmon's buckwheat. Erect annual herbs with slender to slightly fistulose, glabrous stems bearing sessile or shortly peduncled, campanulate involucre with pinkish to dark red, glabrous flowers. Endemic to west central Nevada from Lyon to southern Washoe cos. eastward to Churchill and extreme southern Pershing cos., mostly 1280–1460 m elevation. Flowering from May to early July.

48. *Eriogonum deflexum* Torr. in Ives A widespread and highly variable species ranging from northern Nevada and Utah southward through southern California and Arizona to northwestern Mexico and southwestern New Mexico, mostly below 2300 m elevation.

1. Involucres turbinate, 1.5–2 mm long; peduncles up to 5 mm long; stems not inflated 2
 — Involucres narrowly turbinate, (2) 2.5–3 mm long; peduncles 3–15 mm long; stems often inflated; desert ranges on the southern margin of the Intermountain Region and the adjacent edge of the Mojave Desert var. *baratum*
 2(1). Tepals obtuse basally; plants of the Intermountain Region portion of the state var. *nevadense*
 — Tepals cordate basally; plants of the Mojave Desert portion of the state var. *deflexum*

The Intermountain Region phase of the species is the var. *nevadense* Reveal which occurs throughout that portion of the state except for Eureka and Elko cos. The plant is often found on volcanic soils. It is generally restricted to the valley bottoms and foothills, where it occurs nearly always above 1300 m elevation. In the Mojave Desert portion of the state the var. *deflexum* is the common phase. It differs from the more northern expression in having distinctly cordate tepal bases as opposed to the obtuse tepal bases of the flowers in var. *nevadense*. The var. *deflexum* is restricted to southern Nye and Lincoln cos. and Clark Co., where it generally occurs below 1100 m elevation (some populations may occur as high as 1900 m in the Spring Mts.). The taller, more erect, and inflated stem phase of the species, var. *baratum* (Elmer) Reveal [*E. baratum* Elmer; *E. deflexum* subsp. *baratum* (Elmer) Munz], occurs in the mountains along the interface between the Intermountain Region and the Mojave Desert. In general, var. *baratum* occurs from Esmeralda Co. eastward across southern Nye Co. to west central Lincoln Co., where it is found at 1350–2050 m elevation.

49. *Eriogonum rixfordii* S. Stokes [*E. deflexum* subsp. *rixfordii* (S. Stokes) Munz]. Pagoda buckwheat. Erect glabrous annual herbs with inflorescence branches arranged in numerous tiers of horizontally arranged branches forming a pagodalike crown, with sessile, deflexed involucre bearing small,

Flowering throughout the year but mainly from May through October.

Skeleton weed. Annual, glabrous herbs with erect to spreading branches bearing deflexed peduncles with narrowly turbinate to turbinate involucre and white flowers. The following varieties are found in Nevada.

white flowers. Local and occasionally weedy in the Death Valley region of Inyo Co., California, and just entering Nevada in the Beatty area northward onto the eastern foothills of the Grapevine Mts. in extreme southern Nye Co. at 990–1600 m elevation. Flowering from late June to October.

50. *Eriogonum hookeri* S. Wats. [*S. deflexum* subsp. *hookeri* (S. Wats.) S. Stokes]. Hooker's buckwheat. Spreading glabrous annual herbs with sessile, deflexed involucre bearing yellow flowers. Widespread from east central California eastward across Nevada to eastern Idaho, Utah, western Colorado, northern Arizona and extreme northwestern New Mexico. Rather common in the Intermountain Region portion of Nevada except in Washoe and Humboldt cos., at 1250–2000 m elevation. Flowering from July to October.

51. *Eriogonum brachypodum* Torr. & Gray [*E. parryi* A. Gray; *E. deflexum* var. *brachypodum* (Torr. & Gray) Munz; *E. deflexum* subsp. *brachypodum* (Torr. & Gray) S. Stokes; *E. deflexum* subsp. *parryi* (Torr. & Gray) S. Stokes]. Parry's buckwheat. Low, spreading, glandular annual herbs forming a flat-topped inflorescence with sessile or peduncled, deflexed, involucre bearing white flowers. Widespread and locally common mainly on the Mojave Desert from southeastern California across southern Nevada to southwestern Utah and western Arizona. In Nevada the species occurs in the Lahontan Trough (Reveal 1980) as far north as Churchill

and Pershing cos. and along the southern edge of the Intermountain Region from Mineral and Esmeralda cos. eastward across southern Nye Co. to southern Lincoln Co. southward throughout Clark Co., at 180–1900 m elevation. Flowering from March to October.

52. *Eriogonum bifurcatum* Reveal Pahrump Valley buckwheat. Low spreading glabrous annual herbs with erect peduncles bearing narrow involucre with white flowers. Local and restricted in the Pahrump and Stewart Valley area of Inyo Co., California, and adjacent Nye Co., Nevada, southward to Mesquite Valley in California and the Las Vegas area of Clark Co., Nevada, at 300–800 m elevation. Flowering from late April to late June.

53. *Eriogonum insigne* S. Wats. [*E. exaltatum* M. E. Jones; *E. deflexum* var. *insigne* (S. Wats.) M. E. Jones; *E. deflexum* subsp. *insigne* (S. Wats.). S. Stokes; *E. deflexum* subsp. *exaltatum* (M. E. Jones) S. Stokes]. Exalted buckwheat. Tall, erect, glabrous annual herbs with elongated, whiplike inflorescences bearing erect, sessile, or short-peduncled involucre with white flowers. Local and infrequent from southwestern Utah westward across southern Nevada to southern California. In Nevada the species is most common in the Bunkerville area southwestwardly to the Hoover Dam area in Clark Co.; infrequent elsewhere as on and near the Nevada Test Site in southern Nye Co. and in the Panaca area in Lincoln Co., mostly 300–1480 m elevation. Flowering from late June through October.

54. *Eriogonum watsonii* Torr. & Gray [*E. deflexum* subsp. *watsonii* (Torr. & Gray) S. Stokes; *E. cernuum* var. *multipedunculatum* S. Stokes; *E. deflexum* var. *watsonii* (Torr. & Gray) R. J. Davis; *E. deflexum* var. *multipedunculatum* (S. Stokes) C. L. Hitchc.]. Watson's buckwheat. Low, spreading, glabrous annual herbs with slender, deflexed peduncles bearing long, narrowly turbinate involucre with white flowers. Widespread in the Intermountain Region from southeastern Oregon and southern Idaho southward to northwestern and northern Nevada. In Nevada the species ranges from northern Nye Co. northward to Pershing, Churchill, and Lander cos. and northeastwardly through Eu-

reka Co. to Elko Co., at 1400–2200 m elevation. Flowering from late May to early September.

55. *Eriogonum cernuum* Nutt. Widespread and common throughout much of temperate western North America from southwestern Canada southward on the western edge of the Great Plains to northern New Mexico and westward to southeastern Washington, eastern Oregon, and the mountains of eastern California; found up to 3300 m elevation. Flowering from June through October.

Nodding buckwheat. The var. *cernuum* [*E. cernuum* var. *tenue* Torr. & Gray; *E. cernuum* subsp. *tenue* (Torr. & Gray) S. Stokes]. Annual herbs with straight, cernuous peduncles bearing turbinate involucre and white flowers with crisped or wavy margins. Widespread and common throughout most of the Intermountain Region portion of Nevada and the higher mountain ranges in the Mojave Desert portion of the state; mostly 1200–3100 m elevation and flowering from June through September. The var. *viminale* (S. Stokes) Reveal in Munz [*E. cernuum* subsp. *viminale* S. Stokes] is similar to var. *cernuum* except the involucre are sessile. The var. *viminale* is rather frequent on the desert floors of the Intermountain Region ranging from Elko and Eureka cos. southward to Lincoln Co., then westward to Lander and Nye cos. The variety occurs at 1500–2400 m elevation and flowers from late July to early September.

56. *Eriogonum nutans* Torr. & Gray Drooping buckwheat. A low, often slightly spreading annual herb with curved, cernuous peduncles bearing campanulate involucre and white, rose, or red flowers ranging from western Utah eastward across Nevada to extreme eastern California and southeastern Oregon, mostly 1350–2000 m elevation. Flowering from May to September. The var. *nutans* [*E. cernuum* var. *purpurascens* Torr. & Gray; *E. rubriflorum* M. E. Jones; *E. nutans* var. *brevipedicellatum* S. Stokes] is the most common expression of this relatively rare species and in Nevada is found from Elko and White Pine cos. westward to Mineral, Esmeralda, and Washoe cos. It is characterized by glandular peduncles. The var. *glabratum* Reveal is restricted in Nevada to Elko Co., where it occurs along Interstate Highway 80 from near Elko to Wells. It differs from var. *nutans* in

having glabrous peduncles. The var. *glabratum* has been found near Hirschdale, Nevada Co., California, also on Interstate Highway 80, where it was likely introduced as a result of highway traffic.

57. *Eriogonum thomasi* Torr. Thomas' buckwheat. Low, spreading, often diffusely branched, annual herbs, glabrous throughout except for a few scattered glands near the base of the flowering stems, the spreading, capillary peduncles bearing small involucre of yellow to white or rose, short-hispidulous flowers with the cordate base of the outer tepals distinctly saccate-dilated at full anthesis. Widespread and often common on the warm deserts of northwestern Mexico northward through southern California and southern Nevada to southwestern Utah and western Arizona, where it occurs from below sea level to 1400 m elevation. Flowering from March through June. In Nevada the species is restricted to the Mojave Desert portion of the state in southern Nye and Lincoln cos. and Clark Co.

58. *Eriogonum pusillum* Torr. & Gray [*E. comosum* var. *playanum* M. E. Jones; *E. reniforme* var. *asarifolium* Gand.; *E. reniforme* subsp. *pusillum* (Torr. & Gray) S. Stokes; *E. reniforme* var. *playanum* (M. E. Jones) S. Stokes]. Puny buckwheat. Spreading annual herbs, glabrous throughout except for glands near the base of the flowering stems, the spreading, slender peduncles bearing broad, glandular involucre with yellow to reddish yellow, glandular flowers. Widespread and often common on the warm deserts of southern California northward through the Lahontan Trough of western Nevada to southeastern Oregon and southwestern Idaho and eastward across southern Nevada to southwestern Utah and western Arizona, where it occurs from near sea level to 1800 (rarely 2600) m elevation. Flowering from March through June. In Nevada, the species ranges from the Mojave Desert portion of the state in Clark, southern Lincoln, and Nye cos. northward through the Lahontan Trough (Reveal 1980) to Washoe Co., occurring at 680–1900 m elevation.

59. *Eriogonum reniforme* Torr. & Frem. [*E. reniforme* var. *comosum* M. E. Jones; *E. comosum* (M. E. Jones) M. E. Jones]. Kidney-leaved buckwheat. Spreading annual herbs, glabrous throughout except for a few scattered

hairs near the base of the flowering stems, the spreading, slender to capillary peduncles bearing broad, glabrous involucre with yellow to yellowish red, glandular flowers. Widespread and often infrequent and local from northern Baja California, Mexico, and southern California eastward to western Arizona and north to southern and southwestern Nevada from near sea level to 1600 m elevation. Flowering from March through June. In Nevada the species occurs throughout the Mojave Desert portion of the state and extends up the Lahontan Trough to Churchill Co. It differs from the related *E. pusillum* (see no. 58) in the nature of its leaf pubescence and its glabrous, often glaucous involucre.

60. *Eriogonum viscidulum* J. T. Howell Clammy buckwheat. Tall, erect, diffusely branched, minutely viscid annual herbs with erect, filiform peduncles bearing small, narrow involucre with small yellow flowers. Endemic and rare along the Virgin River, Clark Co., Nevada, mostly 300–475 m elevation. Flowering from April to late June.

61. *Eriogonum collinum* Stokes ex Jones Hilly buckwheat. Low to tall and erect, essentially glabrous annual herbs with open inflorescences of upwardly curved peduncles bearing glabrous involucre of white to yellowish flowers with pustulose tepals. Local and widely scattered from northwestern Nevada and adjacent northeastern California northward to southeastern Oregon, occurring at 1300–2000 m elevation. Flowering from June to mid-September. In Nevada the species ranges from southern Washoe Co. and Lyon Co. northward to west central Humboldt Co.

62. *Eriogonum salicornioides* Gand. [*E. demissum* S. Stokes; *E. demissum* var. *romanum* S. Stokes; *E. vimineum* var. *salicornioides* (Gand.) S. Stokes]. Glasswort buckwheat. Low, spreading, glabrous annual herbs with sessile or short-peduncled involucre bearing small white flowers with pustulose tepals. Rare and infrequent in heavy clay soil of southeastern Oregon and southwestern Idaho, just barely entering Nevada in northern Humboldt Co. (*Train s.n.*—PAC) at 1000–1400 m elevation. Flowering from late April to mid-August.

63. *Eriogonum pharnaceoides* Torr. in Sitgr. Ginseng buckwheat. Erect villous

herbaceous annual herbs with green, basal, and sheathing leaves, the slender and erect peduncles with campanulate involucre bearing 5 lanceolate lobes 1–3 mm long and white or yellow flowers with saccate-dilated tepals. Widespread and infrequent from southeastern Nevada and adjacent southern Utah south to northern Arizona and western New Mexico, mostly at 1350–2500 m elevation. Flowering from August through October. The Nevada expression is the yellow-flowered var. *cervinum* Reveal that is known in Nevada only from the Deer Lodge area of Lincoln Co. It also occurs in southwestern Utah (Iron and Washington cos.) and northern Mohave Co., Arizona. The var. *pharnaceoides* is restricted to Arizona and New Mexico.

64. *Eriogonum spergulinum* A. Gray Spurry buckwheat. Prostrate to spreading or erect hispid and often glandular annual herbs with basal and sheathing leaves, the filiform peduncles with turbinate involucre bearing 4 erect teeth and white, glabrous or sparsely pubescent flowers. Widespread and occasionally weedy from southern and eastern California northward to southeastern Oregon and southwestern Idaho, mostly 1450–3450 m elevation. Flowering from June to late September. The Nevada expression is the widespread and common var. *reddingianum* (M. E. Jones) J. T. Howell [*E. spergulinum* subsp. *reddingianum* (M. E. Jones) Munz ex Reveal] that occurs throughout the range of the species. In Nevada the variety ranges from Mineral Co. northward to Washoe and Humboldt cos., where it occurs at 1500–2800 m elevation. Other variants of the species are restricted to the Sierra Nevada of California.

65. *Eriogonum maculatum* A. A. Heller [*E. angulosum* var. *rectipes* Gand.; *E. angulosum* var. *pauciflorum* Gand.; *E. angulosum* var. *flabellatum* Gand.; *E. angulosum* var. *patens* Gand.; *E. thurberi* var. *acutangulum* Gand.; *E. angulosum* subsp. *maculatum* (A. A. Heller) S. Stokes; *E. ceruum* subsp. *acutangulum* (Gand.) S. Stokes]. Spotted-flowered buckwheat. Low, spreading, tomentose annual herbs with sheathing leaves, the filiform, spreading peduncles bearing campanulate involucre with white to yellow or pink to red, glandular-puberulent flowers, the outer tepals often with a single large purplish spot. Widespread and common in the desert re-

gions of extreme northern Baja California, Mexico, northward through southern and eastern California to southern Washington, and eastward to southern Idaho, western Utah, and western Arizona, from just above sea level to 2450 m elevation. Flowering from April to November. In Nevada the species occurs essentially throughout the state at 510–2100 m elevation and flowers from late April through September.

66. *Eriogonum ampullaceum* J. T. Howell [*E. mohavense* var. *ampullaceum* (J. T. Howell) S. Stokes]. Bottle-shaped buckwheat. An erect slender annual with strictly basal leaves, sessile involucre, and minute flowers with enlarged, roundish, reddish bases and white tepal tips. Rare and infrequent in Mono Co., California, and in adjacent Mineral Co., Nevada, at 1980–2105 m elevation. Flowering from late June through August. In Nevada this species is known only from Alkali Valley on the north side of Alkali Lake (*Tiehm & Lavin 8143*—MARY). This represents a new record for the state.

67. *Eriogonum vimineum* Dougl. ex Benth. [*E. shoshonense* A. Nels.; *E. vimineum* var. *shoshonense* (A. Nels.) S. Stokes]. Wicker buckwheat. Erect glabrous to floccose annual herbs with basal leaves and occasional smaller cauline leaves, the involucre sessile and strongly angled, bearing white to rose or yellow glabrous flowers. Widespread and common in the Pacific Northwest from Washington and Idaho southward to central California and northwestern Nevada, 30–2400 m elevation. Flowering from June through September. In Nevada the species occurs from the Carson City area northward to Washoe, Humboldt, and Elko cos. at 1500–2400 m elevation.

68. *Eriogonum baileyi* S. Wats. Erect glabrous or tomentose annual herbs with basal leaves, sessile and small involucre, and white, glabrous or, more commonly, glandular-puberulent flowers. Widespread and often rather common from eastern California northward to Washington and eastward across Nevada and Idaho to western Utah, mostly 460–2250 m elevation. Flowering from May through September.

Bailey's buckwheat. In Nevada the common expression is var. *baileyi* [*E. gracile* var. *effusum* Torr. & Gray; *E. baileyi* var. *por-*

phyreticum Stokes ex Jones; *E. restioides* Gand.; *E. vimineum* subsp. *baileyi* (S. Wats.) S. Stokes; *E. vimineum* var. *restioides* (Gand.) S. Stokes; *E. vimineum* var. *porphyreticum* (Stokes ex Jones) S. Stokes; *E. vimineum* var. *baileyi* (S. Wats.). R. J. Davis] that is found nearly throughout the state (except Clark Co.). It occurs at 1300–2250 m elevation. The var. *praebens* (Gand.) Reveal [*E. leucocladum* Gand.; *E. praebens* Gand.; *E. praebens* var. *divaricatum* Gand.; *E. commixtum* Greene ex Tidestrom; *E. vimineum* var. *commixtum* (Greene ex Tidestrom) S. Stokes; *E. baileyi* var. *divaricatum* (Gand.) Reveal in Munz] differs from var. *baileyi* in having tomentose rather than glabrous branches and stems. The var. *praebens* ranges from eastern California northward into western Nevada. In Nevada the variety is common from Douglas Co. northward to central Washoe Co., then eastward to Humboldt and Eureka cos. (where rare).

69. *Eriogonum brachyanthum* Coville [*E. baileyi* var. *brachyanthum* (Coville) Jepson; *E. baileyi* subsp. *brachyanthum* (Coville) S. Stokes]. Short-flowered buckwheat. Low, rounded, glabrous annual herbs with basal leaves, sessile involucre, and minute yellow flowers. Common on the desert valley floors and foothills from southern California northward to Nevada at 610–1900 m elevation. Flowering from May through August. In Nevada the species ranges from Nye Co. northward to Washoe Co., then eastward to western Humboldt and Lander cos., 1250–1900 m elevation.

70. *Eriogonum nidularium* Coville [*E. vimineum* subsp. *nidularium* (Coville) S. Stokes]. Bird-nest buckwheat. Low, spreading, tomentose to floccose annual herbs with numerous incurved branches and basal leaves, the involucre minute and sessile, bearing yellow to reddish flowers. Common on the desert valley floors and foothills of southern California eastward to Arizona and northward to Oregon and Idaho, from near sea level to 2150 m elevation. Flowering April through October. In Nevada the species is found throughout the state, mainly at 1300–2150 m elevation.

71. *Eriogonum palmerianum* Reveal in Munz [*E. plumatella* var. *palmeri* Torr. & Gray; *E. baileyi* var. *tomentosum* S. Wats.].

Palmer's buckwheat. Low, spreading, tomentose to floccose annual herbs with few to many spreading branches and basal leaves, the involucre minute and sessile, bearing white flowers. Common on the desert valley floors and foothills of southern California eastward to extreme southwestern New Mexico, and northward to Nevada, Utah, and southwestern Colorado, mostly 670–2680 m elevation. Flowering from June through October. In Nevada the species is common nearly throughout all the state except the northwestern corner, 1300–2300 m elevation.

72. *Eriogonum puberulum* S. Wats. [*E. puberulum* var. *venosum* S. Stokes]. Puberulent buckwheat. Low, spreading, silky-puberulent, reddish annual herbs with basal leaves, the involucre divided to near the base into 4 lobes, with white to bright red, glabrous or hispidulous flowers. Local and infrequent mainly on volcanic soils of Inyo Co., California, eastward across Nevada to southwestern Utah, mainly 1300–2850 m elevation. Flowering from May through August. In Nevada the species is found in Nye, Eureka, White Pine, Lincoln, and extreme eastern Clark cos.

73. *Eriogonum darrovii* Kearney Darrow's buckwheat. Low, spreading, sericeous annual herbs with several to many compact branches bearing basal and cauline leaves, the involucre minute and 5-lobed with pale yellow to pink and white-hirtellous flowers. Rare and infrequent in northwestern Arizona and southeastern Nevada, mostly 1650–1880 m elevation. Flowering from late June to early September. In Nevada the species is known only from near Sunnyside, Nye Co., and south of Major's Place, White Pine Co. The latter locality was reported by Barneby (1947) as *E. divaricatum* Hook., a species not known to occur in Nevada.

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